Seminar demonstration files

Animated graphics

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1 – Introduction

- A kind of simple **animated graphics** can be easily obtained (at least with Acroread). Nevertheless, this feature is not very sophisticated, as we will not have real control on these animations[a].
- It require only to use the standard mechanism of **Seminar** for **overlays** (which in fact is based on the PSTricks one)[b].
- But take care that, if this underlying mechanism is well adapted for this kind of simple animations, it is not at all optimized. This is not a problem for the paper version, as overlays are inhibited in this case, and as we can also keep easily only one step, but it can generate huge files for the screen versions, as all the material of the slide is included in each overlay, just putting it outside the visible region when this is not the required overlay[c].

[a] VTeX supported the animated GIF format, (see the file `animgif.pdf` in CTAN:systems/vtex/common/vtex-doc.zip) in it version 7, but announce new (proprietary) support of animated graphics in it version 8.

[b] We have modified it slightly to increase the default limit to 10 overlays, which was obviously not enough for animations.

[c] For technical explanations, see the pages 243–244 in Timothy VAN ZANDT and Denis GIROU, `Inside PSTricks`, TUGboat, Volume 15, Number 3, September 1994, pages 239–246, available on `http://www.tug.org/TUGboat/Articles/tb15-3/tb44tvz.ps`

- As usual, don't forget to think to the **paper** version. As it will be only the result of all the overlays superimposed, it could be just what we want, if the final graphic is only the sum of all the previous states. But in some other cases, we must keep only one state (so one overlay) for the paper version, introducing a simple test. Look at the various examples demonstrated here.
- To stop the animation mode inside a document, just force a *long* time as duration of each page (it seem that we cannot put a too huge value, but 500 seconds seems accepted):

```
\hypersetup{pdfpageduration=500}
```

- With Acroread, it require first a **configuration change of the reader** to view such animations:
  - in the *Preferences* option of the *File* menu, first choose the *Full Screen* panel,
  - in it, active the first entry *Advance every N seconds* (which is inactivated by default). Put a high value (in the Linux version, this is convenient to put **1000** seconds, but on the Windows version we can't put more than **59** seconds).
  - then validate this change with the *OK* button.

Demonstration of animated graphics

☞ To simulate the inclusion of files of the animated GIF format, we can include external files (nevertheless, this will not offer any control on these animations, as in the previous examples). And we must be really careful here, because this is very easy to gerenate huge files:

➾ with the same basic technique, we can include external files, as the ones resulting of the disassembling of animated GIF[a] ones, or probably MNG[b] ones

```
\begin{slide}
  \begin{figure}[htbp]
    \centering
    \multido{\iImage=1+1}{20}{%
      \overlay{\iImage}%
        \ifnum\iImage<10
          \makebox[0mm]{\includegraphics[width=15truecm]
                                         {Images/wcome0\iImage}}
        \else
          \makebox[0mm]{\includegraphics[width=15truecm]
                                         {Images/wcome\iImage}}
        \fi}
    \caption{External files inclusion}
  \end{figure}
\end{slide}
```

[a] In my example, I use the `gifsicle` tool (see `http://www.lcdf.org/~eddietwo/gifsicle`) with the `--explode` option, convert each resulting GIF file to a JPEG one, then to a compressed encapsulated PostScript one.

[b] See `http://www.libpng.org/pub/png/png-sitemap.html#animation`

Demonstration of animated graphics

➾ nevertheless, this way would provide a non acceptable huge overhead in the size of the output file if the converter or compiler used is not able to load only one time each file, but load all of them for each overlay (which is to say in my example $20\times 20\times 8$ KB $= 3.2$ MB rather than 20×8 KB = 160 KB!)

➾ if the compiler or converter used can include only one copy of each file, the CPU time could nevertheless be significant (for instance, the following example alone require 45 sec. with the VTEX compiler and a recent processor –but it will produce a file of only 400 KB, including the backgrounds, etc.)

➾ so, if the compiler or converter used does not allow to manage overlays for such tasks, we must use a simple loop on the `slide` environments, putting each image on it own slide. Nevertheless, this cause various annex problems with counters, etc., which must be solved conveniently

```
\multido{\iImage=1+1}{20}{%
  \begin{slide}
    \ifnum\multidocount>1
      % Only one time in the list of slides!
      \renewcommand{\slideheading}[1]{\makeslideheading{#1}}%
    \fi
    \slideheading{External files inclusion}%
```


Demonstration of animated graphics


```
    \vspace{1cm}
    \begin{figure}[htbp]
      \centering
      \ifnum\iImage<10
        \includegraphics[width=15truecm]{Images/wcome0\iImage}
      \else
        \includegraphics[width=15truecm]{Images/wcome\iImage}
      \fi
      \caption{External files inclusion}
    \end{figure}
  \end{slide}
  \addtocounter{figure}{-1}%
  \addtocounter{slide}{-1}}

% If other slides followed...
\addtocounter{figure}{1}
\addtocounter{slide}{1}
```

☞ Now, if you switch to *Full Screen* mode now then go to the next page, the visualization of the next slides will be **automatic**...

Demonstration of animated graphics

2 – Communication ring

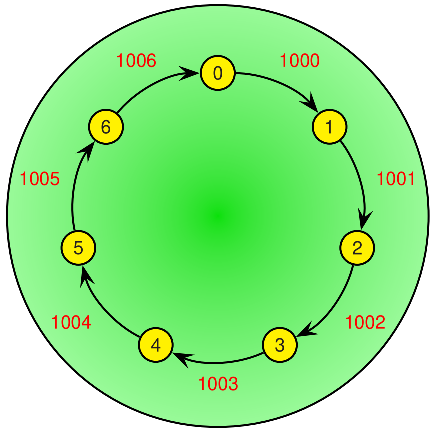

Figure 1: Communication ring

3 – Commutative diagram

$$
\begin{tikzcd}
& \Sigma^L \arrow[rrr, "\varphi^r"] \arrow[ddd, "\varphi^m"'] & & & \Sigma^R \arrow[ddd, "\varphi^{m^*}"] \\
L \arrow[ur, "\lambda^L"] & & L_r \arrow[ll, "i_1"'] \arrow[r, "r"] & R \arrow[ur, "\lambda^R"'] & \\
L_m \arrow[u, "i_2"] \arrow[dd, "m"'] & & K_{r,m} \arrow[ll, "i_3"'] \arrow[r, "r"] \arrow[u, "i_4"] \arrow[dd, "m"] & R_{m^*} \arrow[u, "i_6"] \arrow[dd, "m^*"] & \\
& \Sigma^G \arrow[rrr, "\varphi^{r^*}"] & & & \Sigma^H \\
G \arrow[ur, "\lambda^G"] & & G_{r^*} \arrow[ll, "i_5"] \arrow[r, "r^*"'] & H \arrow[ur, dashed, "\lambda^H"'] &
\end{tikzcd}
$$

Figure 2: Commutative diagram

4 – Results of the year

Table 1: Results of the year

1st Quarter	723	
2nd Quarter	819	+ 13 %
3rd Quarter	687	– 16.1 %
4th Quarter	894	+ 30.1 %

5 – Clock

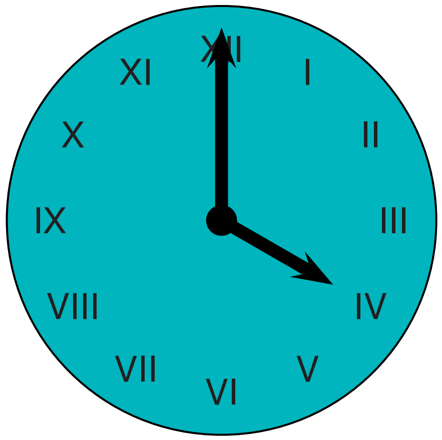

Figure 3: Clock

Figure 3: Clock

6 – Clock with split-second hand

Document compiled at: 22h 34m 01s

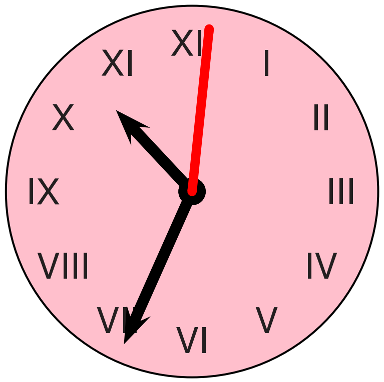

Figure 4: Clock with split-second hand

7 – Random walk

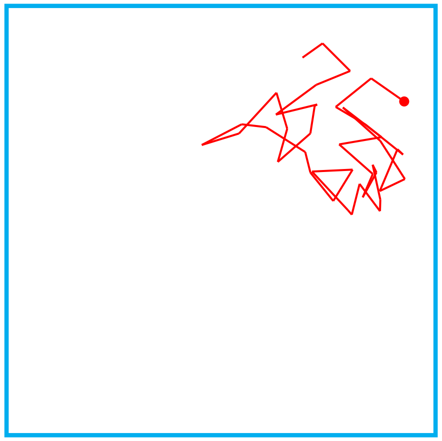

Figure 5: Random walk

8 – Text shown through a lens

L'Éternité

Puisque de vous seules,
Braises de satin,
e devoir s'exhale
ans qu'on dise : enfin.

Là pas d'espérance,
Nul orietur.
Science avec patience,
Le supplice est sûr.

De la nuit si nulle
Et du jour en feu.

Des humains suffrages
Des communs élans
Là tu te dégages
Et voles selon.

Elle est retrouvée.
Quoi ? — L'Éternité.
C'est la mer allée
Avec le soleil.

Arthur Rimbaud

9 – Text progressively shown

Do not do like me!

10 – Text progressively vanished

Oh! my dear friends...

It is time to tell you

good bye!

See you again soon!

11 – Building of a regular polygon of seventeen sides

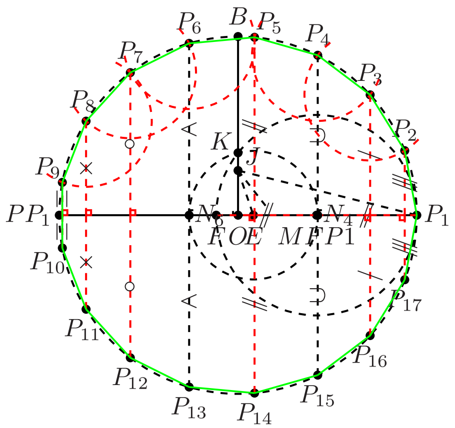

Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.
This code is from Dominique RODRIGUEZ, part of the examples of his ‘pst-eucl’ PSTricks package for Euclidian geometry.

12 – External files inclusion

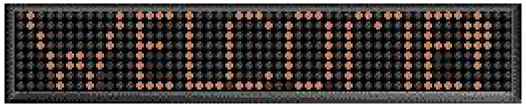

Figure 7: External files inclusion